UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,741	10/09/2003	Ho-sung Han	1793.1034	8149

21171 7590 07/23/2007
STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
EBRAHIMI DEHKORDY, SAEID	
ART UNIT	**PAPER NUMBER**
2625	
MAIL DATE	**DELIVERY MODE**
07/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.	10/681,741	
Applicant(s)	HAN, HO-SUNG	
Examiner	Saeid Ebrahimi-dehKordy	
Art Unit	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *31 and 32* is/are allowed.

6)☒ Claim(s) *1,2,4-30,33 and 34* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *1/9/03* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 4-6 and 15-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Ackerman et al (Pub. NO.: US 20020171856)

Regarding claim 1 Ackerman et al disclose: A printing system (note Fig.1) comprising: a first memory (note Fig.1, item 16) unit storing a printer operating system and at least two interpreters (note Fig.1, item 16, the ROM or flash memory containing interpreters, item 28 or Fig.1) containing a second memory unit having an operating area for the printer operating system (note Fig.1, items 16 and 15) an operating area and a heap area for each interpreter of the first memory unit (note Fig.1, Rom 16 which contains interpreters) and at least two reception buffers temporarily storing incoming print job data (note Fig.1, item 22 the buffer which as well known in the art would be partitioned to different plurality of buffers) a printing control unit (note Fig.1, item 14, the microprocessor) controlling operation of the printing system based on the printer operating system (note page 6, paragraph 0073, where the processor controls the functions of the printer) controlling the interpreters of the first memory unit to interpret the print job data (note page 6, paragraph 0073, lines 7-11, where the microprocessor 14 would control the Rom which contains the Interpreters) and transmitting the interpreted print job data to a printer engine (note page 3, paragraph 0038) and a print job scheduling unit providing a first scheduling procedure regarding initiation of the interpreters for multiple print jobs (note page 5, paragraph 0063, where the printing jobs are received and initiates the interpreter for different jobs by different interpreters, such as PCL or PS) and a second scheduling procedure regarding interpretation of the multiple print jobs that have been initiated (note page 5&6, paragraph 0063, paragraph 0063, lines 8-11, where the print language interpreter would different job's interpretation) printer control unit using the first scheduling procedure and the second scheduling procedure to control the operation of the interpreters (note pages 5&6, paragraphs 0063-0064).

Regarding claim 2 Ackerman et al disclose: The printing system of claim 1, wherein the first memory unit assigns different link addresses to the respective interpreters (note page 5, paragraph 0063, lines 3-6, where the job manager looks for the interpreters based on their address)

Regarding claim 4 Ackerman et al disclose: The printing system of claim 1, wherein the heap area of the second memory unit has a number of sub-areas equal to the number of print jobs being interpreted (well know in the art that the storage would be partitioned to hold different spaces for different files).

Regarding claim 5 Ackerman et al disclose: The printing system of claim 1, wherein, when N print jobs are being interpreted, the heap area of the second memory unit has N heap areas for each respective print job and a common area for the N print jobs (well know in the art that the storage would be partitioned to hold different spaces for different files).

Regarding claim 6 Ackerman et al disclose: The printing system of claim 1, wherein the heap area of the second memory unit comprises segments, each segment having an equal size, the segments being sequentially assigned as each of the multiple print jobs begins to be interpreted (well know in the art that the storage would be partitioned to hold different spaces for different files).

Regarding claim 15 Ackerman et al disclose: The printing system of claim 1, wherein the first memory unit is a read only memory (ROM) (note Fig.1, item 16)

Regarding claim 16 Ackerman et al disclose: The printing system of claim 1, wherein the second memory unit is a random access memory (RAM) (note Fig.1, item 15).

Regarding claim 17 Ackerman et al disclose: The printing system of claim 1, further comprising a switching unit forwarding the incoming print job data to one of the at least two reception buffers in response to a control signal output from the print job scheduling unit, the control signal indicating whether the reception buffers are empty or full, respectively (note where the buffer 22, of Fig.1 would be partitioned to different memories or separate buffers as well know in the art).

Regarding claim 18 Ackerman et al disclose: The printing system of claim 1, wherein the at least two interpreters are different types of interpreters (note page 5, paragraph 0063).

Regarding claim 19 Ackerman et al disclose: The printing system of claim 1, wherein the at least two interpreters are the same type of interpreter (note pages 5&6, paragraphs 0063-0064).

Regarding claim 20 Ackerman et al disclose: The printing system of claim 1, wherein a number of the reception buffers used depends on a memory size of the second memory unit (memories would be partitioned to different size as need t hold data).

Regarding claim 21 Ackerman et al disclose: The printing system of claim 1, wherein a number of the interpreters used depends on a memory size of the first memory unit and the second memory unit (note page 5 and 6, paragraphs 0063-0064).

Regarding claim 33 Ackerman et al disclose: The printing system of claim 1, wherein when any of the at least two interpreters receives the incoming print job data, the heap area of the interpreter receiving the incoming print job data is used to temporarily store the incoming print job data or to convert the incoming print job data into printable data (well know in the art that the storage would be partitioned to hold different spaces for different files).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman et al (Pub. No.: US 20020171856) in view of Patton (Pub. No.: US 20020118387)

Regarding claim 7 Ackerman et al do not clearly disclose: The printing system of claim 1, wherein the first scheduling procedure allows interpretation of higher priority print job data to be initiated earlier than lower priority print job data, even when interpretation of preceding print job data has been initiated. **On the other hand Patton discloses:** The printing system of claim 1, wherein the first scheduling procedure allows interpretation of higher priority print job data to be initiated earlier than lower priority print job data, even when interpretation of preceding print job data has been initiated (note page 2, paragraph 0018, lines 13-29). Therefore it would have been obvious to a person of ordinary skill in art at the time of the invention to modify Ackerman et al's invention according to the teaching of Patton , Where Patton teaches the way the print job where interpreted to manipulate the priority of the printing jobs based on the user's preference of printing the print jobs, this would enhance the printing system to higher capabilities.

Regarding claim 8 Patton discloses: The printing system of claim 7, wherein the first scheduling procedure allows interpretation of new print job data to be initiated earlier than the preceding print job data, even when the new print job data do not have higher priority, when an interpreter run time of the preceding print job data has exceeded a predetermined amount of time (note page 2&3, paragraph 0018).

Regarding claim 9 Patton discloses: The printing system of claim 8, wherein the print job scheduling unit determines print job priority on a user priority basis in a network environment (note page 1, paragraph 0003).

Regarding claim 10 Patton discloses: The printing system of claim 8, wherein a user determines print job priority on a job priority basis in a non-network environment (note page 2, paragraph 0014).

Regarding claim 11 Patton discloses: The printing system of claim 1, wherein the second scheduling procedure schedules alternate interpretation of the multiple print job data, which have started to be interpreted, by time-sharing, when the multiple print job data have equal occupation ratios without priorities (note page 2, paragraphs, 0015-0018).

Regarding claim 12 Patton discloses: The printing system of claim 1, wherein the second scheduling procedure schedules interpretation of the multiple print job data, which have started to be interpreted, according to occupation ratios when the multiple print job data have different occupation ratios without priorities (note page 2, paragraph 0018).

Regarding claim 13 Patton discloses: The printing system of claim 11, wherein, when interpretation of higher priority print job data has been initiated, the second scheduling procedure stops interpretation of lower priority print job data to enable the higher priority print job data to be completely interpreted sooner than the lower priority print job data, regardless of the occupation ratios of the multiple print job data having interpretation already initiated (note page 2 paragraph 0015).

Regarding claim 14 Patton discloses: The printing system of claim 12, wherein, when interpretation of higher priority print job data has been initiated, the second scheduling procedure stops interpretation of lower priority print job data to enable the higher priority print job data to be completely interpreted sooner than the lower priority print job data, regardless of the occupation ratios of the multiple print job data having interpretation already initiated (note page 2, paragraph 0018).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman et al (Pub. No.: 20020171856) in view of Patton (Pub. No.: US 20020118387)

Regarding claim 22, 28 and 34 Ackerman et al disclose: A method of controlling a print job schedule, the method comprising: scheduling initiation of interpreters according to a first scheduling procedure depending on print job priority between preceding print job data having interpretation initiated and succeeding print job data (note pages, 5&6, paragraphs 0063-0064) However Ackerman et al do not clearly disclose: and scheduling a process of interpretation of multiple print job data having interpretation initiated according to a second scheduling procedure depending on occupation ratios and print job priority. On the other hand Patton discloses: scheduling a process of interpretation of multiple print job data having interpretation initiated according to a second scheduling procedure depending on occupation ratios and print job priority (note page 2, paragraph 0015-0020, where the scheduling is determined based on the priority of the jobs and manipulation of the user of print queue). Therefore it would have been obvious to a person of ordinary skill in art at the time of the invention to modify Ackerman et al's invention according to the teaching of Patton , Where Patton teaches the way the print job where interpreted to manipulate the priority of the printing jobs based on the user's preference of printing the print jobs, this would enhance the printing system to higher capabilities.

Regarding claim 23 Patton discloses: The method of claim 22, wherein the first scheduling procedure involves initiating interpretation of higher priority job data earlier than preceding print job data having interpretation already initiated (note page 2, paragraph 0018, lines 13-29).

Regarding claim 24 Patton discloses: The method of claim 23, wherein the first scheduling procedure involves allowing interpretation of new print job data to be initiated earlier than the preceding print job data, even when the new print job data do not have higher priority, when an interpreter run time of the preceding initiated print job data has exceeded a predetermined amount of time (note page 2&3, paragraph 0018).

Regarding claim 25 Patton discloses: The method of claim 22, wherein the second scheduling procedure involves alternately interpreting the multiple print job data, which have started to be interpreted, by time-sharing, when the multiple print job data have equal occupation ratios without priorities (note page 2, paragraphs, 0015-0018).

Regarding claim 26 Patton discloses: The method of claim 23, wherein the second scheduling procedure comprises scheduling interpretation of the multiple print job data, which have started to be interpreted, according to the occupation ratios when the multiple print job data have different occupation ratios without priorities (note page 2, paragraph 0018).

Regarding claim 27 Patton discloses: The method of claim 22, wherein, when interpretation of higher priority print job data has been initiated, the second scheduling procedure schedules termination of interpretation of lower priority print job data to enable the higher priority print job data to be completely interpreted sooner than the lower priority print job data, regardless of the occupation ratios of the multiple print job data having interpretation already initiated (note page 2 paragraph 0015).

Regarding claim 29 Patton discloses: The method of claim 28, further comprising scheduling initiation of the interpreters to initiate interpretation of the succeeding print job data earlier, even when the preceding print job data are already being interpreted, when the succeeding print job data have priority (note page 2, paragraphs, 0015-0018).

Regarding claim 30 Patton discloses: The method of claim 28, further comprising scheduling interpretation of multiple print job data to terminate interpretation of lower priority print job data to enable higher priority print job data to be completely interpreted earlier when the multiple print job data being interpreted have higher priority, regardless of the occupation ratios of the multiple print job data being interpreted (note page 2, paragraphs 0015-0018).

Allowable Subject Matter

7. Claims 31-32 are allowed.

8. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeid Ebrahimi-dehKordy whose telephone number is 703-306-3487. The examiner can normally be reached on Mon-Fri,8:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Saeid Ebrahimi
Patent Examiner
Group Art Unit 2625
July 19, 2007